



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,307	04/06/2001	Tadahiro Ohmi	P 280043 EL00026CDC	4153

909 7590 04/24/2002
PILLSBURY WINTHROP, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 04/24/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-9

Office Action Summary

Application No.

09/827,307

Applicant(s)

OHMI ET AL.

Examiner

Luz L. Alejandro

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3,7</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-7 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Omi et al., JP 2000-040695A (see Figures and abstract).

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1763

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asamaki et al., U.S. Patent 4,950,956 in view of Okumura et al., U.S. Patent 6,297,165 B1.

Asamaki et al. shows the invention substantially as claimed including a plasma processing apparatus comprising a first electrode 22 on which a substrate 25 subjected to a plasma process is placed and magnetic field applying means 30 for applying a magnetic field to a surface of the substrate 25 to which the plasma process is applied (see Figs. 1-8 and col. 2-line 49 to col. 4-line 52).

Asamaki et al. lacks anticipation of an auxiliary electrode provided on an outer periphery of said first electrode to excite plasma by the auxiliary electrode so as to cause electrons in the plasma to drift from a front surface to a back surface of said

Art Unit: 1763

auxiliary electrode and from the back surface to the front surface of said auxiliary electrode. Okumura et al. discloses an auxiliary electrode 11 provided on an outer periphery of a first electrode 7 on which a substrate 8 lies which excites plasma from a RF source 10 (see Fig. 3 and col. 4-line 43 to col. 5-line 38). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Asamaki et al. so as to contain the auxiliary electrode structure of Okumura et al. because this allows for accurate measuring of the self-bias potential (see abstract). Furthermore, the incorporation of the auxiliary electrode feature of Okumura et al. into the Asamaki et al. reference would inherently produce an apparatus capable of producing the plasma electron drift as claimed.

With respect to covering the auxiliary electrode with an insulating material (see claim 2), the examiner takes official notice that it would have been obvious to one of ordinary skill in the art to cover the auxiliary electrode with an insulating material such as quartz to eliminate the possibility of the plasma sputtering off portions of the electrode and contaminating the substrate.

Regarding claim 3, note from Figure 2 of Okumura et al. that the level of the substrate 8 placed on the first electrode 7 and the auxiliary electrode are equal to each other.

With respect to claim 4, note that the magnet of Asamaki et al. is ring-shaped (see Fig. 2) and contains poles (see abstract).

Art Unit: 1763

Considering claim 5, note that the first electrode 7 and auxiliary electrode 11 of Okumura et al. are both powered by the same RF source 10 and the auxiliary electrode 11 has a capacitor 23 connected therewith which will alter the phase (see Fig. 3).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asamaki et al., U.S. Patent 4,950,956 in view of Okumura et al., U.S. Patent 6,297,165 B1 as applied to claims 1-5 and 7 above, and further in view of Shan et al., U.S. Patent 6,232,236 B1.

Asamaki et al. and Okumura et al. are applied as above but lack anticipation of applying a higher frequency to the auxiliary electrode than to the first electrode. Shan et al. discloses having an outer electrode 220 and an electrode 215 on which the substrate lies, where both electrodes have their own individual RF power supplies with different frequencies (see Figs. 2-3 and col. 3-line 31 to col. 5-line 10). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Asamaki et al. and Okumura et al. so as to provide, for instance, a higher frequency to the auxiliary electrode than to the first electrode because this allows for better controllability of the plasma in the region of the substrate.

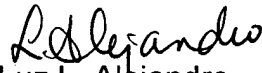
Art Unit: 1763

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 305-4545. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills, can be reached on 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 872-9310 for regular communications and 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1782.


Luz L. Alejandro
Patent Examiner
Art Unit 1763

April 21, 2002